

# PRESS RELEASE

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**Innovative drying technology**

## **FastDry® wall-drying technology is quick, quiet and energy-efficient**

**Until now, noisy and power-guzzling building dryers have normally been the only way of repairing water damage to apartments from leaking pipes or following heavy rain and flooding. The “FastDry”® technology developed by Fraunhofer researchers requires significantly less energy and works at least as quickly as conventional systems. The idea that underpins the technology is incredibly simple.**

Damp walls are a massive problem. Moisture compromises the indoor climate of living spaces and encourages the growth of mold that is hazardous to health. In the worst-case scenario, an apartment or a house can be rendered uninhabitable. According to information from the German Insurance Association (GDV), approximately 1.1 million cases of water damage were recorded in Germany in 2019. In statistical terms, this means that a water pipe sprang a leak every 30 seconds on average. In addition, acts of nature like heavy rain and flooding can also cause severe damage to basements and apartments.

Building dryers for dehumidifying walls and renovating water damage use infrared radiant heaters or dry air fans, known as adsorption dryers. However, these devices use a great deal of energy and adsorption dryers are also very loud. Researchers from the Fraunhofer Institute for Building Physics IBP have now developed the innovative FastDry® drying technology. It can dry walls or ceilings rapidly and is significantly more energy-efficient than conventional systems.

The FastDry® drying module consists of a large, rectangular insulation panel laminated on both sides. It is applied directly to the damp wall and heats it using an integrated heating wire. The water vapor emitted passes through the permeable materials in the panel, dissipating unhindered. The heat energy itself is held in the wall by the insulation. This means that the drying module requires very little power in order to maintain the temperature and the room is not heated unnecessarily. Project manager Andreas Zegowitz, Group Manager Thermal Properties, Artificial Climate Simulation in the Hygrothermics department, and his team use conventional mineral fibers to create the insulation layer. It is non-flammable, making it compatible with strict fire safety regulations.

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## **Better than infrared, quieter than adsorption dryers**

FastDry® consumes considerably less power than comparable building dryers and even works significantly faster than adsorption devices. The Fraunhofer technology also outperforms infrared heating plates. FastDry® only requires around 15% of the energy that standard infrared devices use for the same process. The typical working temperature is around 55°C. “We selected a temperature that even sensitive building materials can withstand without any issues. Hot enough to achieve the conventional rate of moisture dissipation, but not so hot that the user could accidentally burn their hand,” explains Zegowitz. Another advantage is that neither fans nor compressors are used, meaning that the FastDry® device works silently. It can run all day in offices or all night in apartments without causing any problems.

The core principle of FastDry® — holding in heat whilst moisture dissipates — seems incredibly simple. It was made possible by the decades of experience and expertise in building materials, building physics, moisture management and indoor climates contributed by the experts of Fraunhofer IBP. Prof. Hartwig Künzel, Head of the Hygrothermics department at Fraunhofer IBP, says: “FastDry® was no rush job. We have been continuously developing and optimizing the design over the years, putting it through many series of tests.”

## **Sensors measure wall surface temperatures**

But how does the FastDry® module know that the wall is dry? A temperature sensor continuously measures the surface temperature. In addition to the temperature, the module’s power consumption is also measured. The more moisture has been removed from the wall, the less energy is required to maintain the set temperature. “For example, if the temperature and energy consumption remain stable over a period of 24 hours, the wall can be considered dry. The FastDry® module can then be turned off remotely or manually unplugged. Then it can be detached from the wall,” explains Zegowitz. This stops the module from continuing to run and consuming energy once the wall is already dry.

The technology is ready for the market and for serial production. The licensee’s module has also obtained the CE marking. The initial target groups are professional service providers in building drying and building renovation. It is also good news for insurers, who often have to cover the costs for drying walls in the event of water damage. These costs will be significantly reduced by the technology’s rapid drying and low energy consumption.

## **Building drying during shell stage of construction and after flooding**

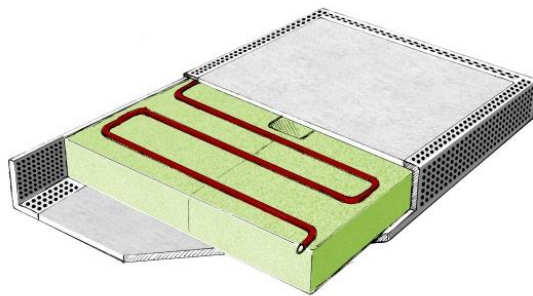
Renovating water damage in apartments is not the only possible application of FastDry®. “The module can be used for any surface that needs to be dried, for example during the shell stage of building construction and when renovating historic buildings. Concerns about more frequent periods of heavy rain will also increase the demand for efficient drying technology,” explains Künzel. Next, the experts of Fraunhofer IBP will work on designing a flexible and malleable form of the FastDry® module. This will mean it can be used to dry columns or wooden beams, for example.

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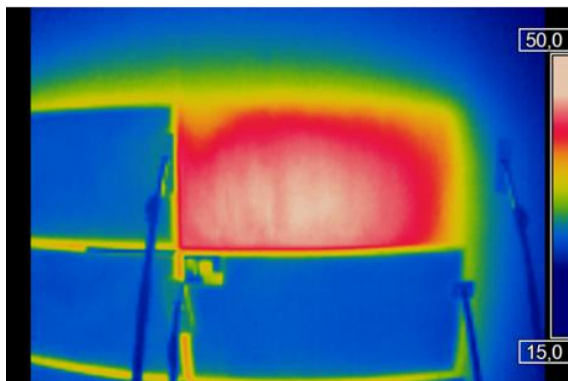


**Fig. 1** The layout of the drying module: The heating wire is embedded in non-flammable mineral fiber. The water vapor emitted can dissipate through the permeable material.

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**Fig. 2** The thermal imaging camera shows the following: In the top right section, immediately after removing the FastDry® module, the heat is dissipating from the wall. The other segments with FastDry® applied are holding the heat in the wall and therefore require significantly less power.

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**Fig. 3** Fraunhofer IBP's FastDry® technology is ready for the market and is already being produced under license.

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